



US006050451A

United States Patent [19]**Hess, III et al.****Patent Number:** **6,050,451****[45] Date of Patent:** **Apr. 18, 2000**

[54] **DISPENSING STRUCTURE INCORPORATING A VALVE-CONTAINING FITMENT FOR MOUNTING TO A CONTAINER AND A PACKAGE WITH A DISPENSING STRUCTURE**

[75] **Inventors:** **John M. Hess, III; Stuart R. Brown,** both of Midland; **Joel R. Robinson,** Bay City; **Timothy R. Socier,** Essexville, all of Mich.

[73] **Assignee:** **AptarGroup, Inc., Crystal Lake, Ill.**

[21] **Appl. No.:** **09/196,301**

[22] **Filed:** **Nov. 19, 1998**

[51] **Int. Cl.:** **B65D 33/38**

[52] **U.S. Cl.:** **222/92; 105/107; 105/153.05; 105/153.14; 105/490; 105/541.6**

[58] **Field of Search:** **222/92, 94, 105, 222/107, 153.14, 153.05, 541.6, 541.9, 490**

[56] **References Cited**

U.S. PATENT DOCUMENTS

1,989,714	2/1935	Statham .
1,996,156	4/1935	Janssen .
3,235,128	2/1966	Hansen 222/107
3,669,323	6/1972	Harker et al. .
4,553,971	11/1985	Ashley et al. 222/107 X
4,629,080	12/1986	Carveth 222/107 X
4,640,425	2/1987	Cabernoch 222/107 X
4,728,006	3/1988	Drobish et al. .
4,732,299	3/1988	Hoyt 222/107 X
4,749,108	6/1988	Dornbusch et al. .
4,794,750	1/1989	Schmidt et al. .
4,830,205	5/1989	Hammond et al. 222/107 X
4,969,581	11/1990	Seifert et al. .
4,991,745	2/1991	Brown .
4,998,646	3/1991	Sherman 222/107
5,005,734	4/1991	Van Gordon et al. 222/107
5,033,655	7/1991	Brown .
5,115,950	5/1992	Rohr .
5,213,236	5/1993	Brown et al. .
5,271,531	12/1993	Rohr et al. .
5,307,955	5/1994	Viegas .

5,339,995	8/1994	Brown et al. .
5,377,877	1/1995	Brown et al. .
5,409,144	4/1995	Brown .
5,439,143	8/1995	Brown et al. .
5,680,969	10/1997	Gross .
5,873,491	2/1999	Garcia et al. 222/95
5,911,340	6/1999	Uematsu 222/92

FOREIGN PATENT DOCUMENTS

160336	11/1985	European Pat. Off. .
297 06 158 U	1	4/1997 Germany .
297 06 159 U	1	4/1997 Germany .
1474620	5/1977	United Kingdom .
WO 96/38349	5/1996	WIPO .
WO 97/08979	3/1997	WIPO .

OTHER PUBLICATIONS

U.S. application No. 08/843,165, filed Apr. 14, 1997, which allowed on Sept. 22, 1998.

U.S. application No. 08/915,960 assigned to AptarGroup, Inc.

Primary Examiner—Kenneth Bomberg

Attorney, Agent, or Firm—Rockey, Milnamow & Katz, Ltd.

[57] **ABSTRACT**

A dispensing structure, and a package with a dispensing structure, is provided with a valve. In one embodiment, the dispensing structure is a multi-piece fitment. The multi-piece fitment includes a base for mounting to the container and a valve carrier for mounting to the base. A flexible, self-sealing slit-type valve is mounted within the carrier. In another embodiment, a fitment is mounted in the opening of a thin-walled, flexible, collapsible container, and the flexible valve is mounted in the fitment. In yet another embodiment, a package includes a container having a corner wall defining an opening, and a fitment is sealingly mounted to the corner wall at the opening. A valve is disposed within the fitment. A removable and disposable cover extends from the container over the fitment and at least a portion of the corner wall to define a hermetically sealed volume around the fitment. The cover may be pulled away from the container to expose the fitment.

8 Claims, 8 Drawing Sheets

